Notice of Allowability	Application No.	Applicant(s)	
	09/989,674	WOODS, GORDON L.	
	Examiner	Art Unit	
	Shaojia A. Jiang	1617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *March 24, 2005 and April 7, 2005*.

2. ☒ The allowed claim(s) is/are *20-23, 25, 61, 64, 66, and 69-74 (now renumbered to 1-14)*.

3. ☐ The drawings filed on _____ are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

SAJ 6/9/05

S. Anna Jiang, Ph.D.
Primary Examiner
Art Unit 1617

DETAILED ACTION

This Office Action is in response to Applicant's amendment and response filed on March 24, 2005 wherein claims 24, 65, and 67-68 are cancelled; claims 20-23, 25, 61, 64, and 66 have been amended; claims 69-74 are newly submitted. Claims 1-19, 26-60, and 62-63 are cancelled previously.

Currently, claims 20-23, 25, 61, 64, 66, and 69-74 are pending in this application.

Applicant's declaration of Gordon L. Woods, Ph.D. (inventor), submitted April 7, 2005 under 37 CFR 1.132, is acknowledged and will be further discussed below.

Note that the specification has provided the adequate support for Applicant's amendment filed March 24, 2005 with respect to the dose range and the route of administration (see [0055] at page 20-21). Thus, the amendment does not constitute new matter.

Reasons For Allowance

Claims 20-23, 25, 61, 64, 66, and 69-74 as amended now are examined on the merits herein.

The claimed methods of increasing the levels of cadmium in body fluids and tissues of human which comprises orally administering to a human suffering from deficient levels cadmium in his body fluids and tissues a bioavailable and physiologically acceptable cadmium salt at specific dose levels about 0.5 mg to about 2 mg per day to minimize or eliminate said cadmium deficiency, and parenterally administering to said

human a bioavailable and physiologically acceptable cadmium salt at specific dose levels about 0.025 mg to about 0.1 mg per day, are not seen to be taught or fairly suggested by the prior art, as discussed below.

Applicant's declaration of Gordon L. Woods, under 37 CFR 1.132 submitted April 7, 2005 and Applicant's remarks, have been considered and are sufficient to overcome the rejection of claims 20-25, 61, and 64-68 made under 35 U.S.C. 112, first paragraph, for lack of scope of enablement for the dose range of about 0.025 to 2 mg/day in view of cadmium's known toxicity, of record in the previous Office Action September 24, 2004, since, first, the declaration provides the testing results in human:

"A daily oral dose of 2 mg of cadmium sulfate was administered to a healthy human male over a nine week period. The cadmium sulfate was administered every morning, one hour prior to any food intake. Blood and urine samples were collected from the man one day prior to the beginning of treatment(considered day 1 of the study) and then on days 20, 34, 48, 62 and 73. The cadmium sulfate was administered daily on days 2 -64 of the study period." "No evidence of toxicity was detected throughout the nine week cadmium treatment protocol." (see the declaration "5" at page 3-4).

Thus, Applicant concludes that this protocol illustrates that 2 mg of a cadmium salt can be safely administered orally for an extended period to humans.

Second, the declaration further provides the results of a series of toxicity studies in which cadmium salts were orally administered to rhesus monkeys. Rhesus monkeys are a good animal model for humans with regard to cadmium toxicity because humans and rhesus monkeys metabolize cadmium similarly according to Nomiyama et al. (Environ. Health Perspect. 28:223-243 (1979)). (see the declaration "7" at page 5-8).

Therefore, Applicant states that "the results of this study provide further evidence that the doses set forth in the present application will not cause toxicity in humans".

Third, Dr. Woods further explains in his declaration that "an oral dose of about 0.5 mg/day to about 2 mg/day is comparable to a parenteral dose of about 0.025 mg/day to about 0.1 mg/day. When cadmium is administered orally, about 95% of the cadmium passes through the gastro-intestinal system and is not absorbed into the rest of the body; only about 5% is therapeutic. When a dose is administered parenterally, such as intravenously, essentially all of the cadmium can be absorbed and available as a therapeutic. Thus, parenteral doses that are about 5% of the oral doses are comparable to the oral doses and are suitable and effective." (see the declaration "6" at page 4-5).

Thus, the factual evidence in the declaration is seen to provide sufficient enablement for the claimed range of dose and administration routes in the claimed methods. Therefore, the skilled artisan would not have to exercise "undue experimentation" to practice in the claimed composition.

Applicant's amendment submitted March 24, 2005 which specifies the range of dose and administration route in the claimed methods, and Applicant's remarks have been considered and are sufficient to remove the rejection of claims 20, 24, 61, and 65-67 made under 35 U.S.C. 102(b) as being anticipated by Jacobson et al., and the rejection of claims 21-22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobson et al. or Lakatos et al. of record in the previous Office

Action September 24, 2004, since, first, Jacobson et al. does not teach the amount of 0.5 mg/day to about 2 mg/day of cadmium for the oral administration to to a human suffering from deficient levels cadmium in his body fluids and tissues to a human suffering from deficient levels cadmium in his body fluids and tissues in the claimed method.

Second, Jacobson et al. does not teach a dose of about 0.025 mg/day to about 0.1 mg/day of cadmium for the parenteral administration to a human suffering from deficient levels cadmium in his body fluids and tissues to a human suffering from deficient levels cadmium in his body fluids and tissues in the claimed method. Even though Jacobson et al. discloses the known amounts of Cd to be administered daily to a human, 50-60 μg (equal to 0.05-0.06 mg) or 5-68 μg, the teaching of Jacobson et al. is merely directed to "the average intake" from food or diet (see page 121 the last paragraph to the third paragraph of page 122). Thus, this amount of 50-60 μg (equal to 0.05-0.06 mg) or 5-68 μg of cadmium naturally contained in food or diet taught by Jacobson et al. is intaken orally daily to a human.

Moreover, as discussed above, Dr. Woods explains in his declaration, that "an oral dose of about 0.5 mg/day to about 2 mg/day is comparable to a parenteral dose of about 0.025 mg/day to about 0.1 mg/day".

Thus, Jacobson et al. fails to teach a dose of about 0.025 mg/day to about 0.1 mg/day of cadmium for the parenteral administration, as claimed herein.

Further Lakatos et al. merely teaches the complex of polygalacturonic acid with cadmium wherein polygalacturonic acids are employed for removing toxic elements in a

body. Thus, Lakatos et al. also fails to teach the claimed dose of cadmium for oral and parenteral administration, as claimed herein.

Therefore, the claimed methods herein are not seen to be anticipated by the prior art under 35 U.S.C. 102, or to be obvious over the same reference under 35 U.S.C. 103(a).

Accordingly, Applicant's amendments submitted March 24, 2005 and Applicant's declaration of Gordon L. Woods, under 37 CFR 1.132 submitted April 7, 2005 are sufficient to remove all rejections made in the prior Office Action as discussed above and place the application in condition for allowance.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Jiang, whose telephone number is (571)272-0627. The examiner can normally be reached on Monday-Friday from 9:00 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreenivasan Padmanabhan, Ph.D., can be reached on (571)272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Anna Jiang, Ph.D.
Primary Examiner
Art Unit 1617
June 9, 2005